

Application No. 09/408,808

Docket No. 22-0074

providing at least one multicast module on said processing satellite wherein said multicast module is associated with one multicast output port;

providing at least one multicast routing table having memory locations storing addressing information;

establishing a set of VPIs wherein each VPI is uniquely associated with a single output port on said processing satellite, and wherein at least one of said VPIs is a multicast VPI uniquely associated with said multicast output port;

establishing a set of VCIs;

assigning said multicast VPI to said data cell, wherein said transferring step comprises transferring said data cell to said multicast output port uniquely associated with said assigned multicast VPI;

assigning a VCI from said set of VCIs to said data cell;

receiving said data cell by said multicast module associated with said multicast output port;

examining said assigned VCI to determine a multicast group of VPIs from said set of VPIs;

reproducing said data cell to create a predetermined number of reproduced data cells; and

reassigning each of said reproduced data cells with a new VPI from said multicast group of VPIs.

17. (Amended) In a processing satellite communications system including at least one processing satellite having a receiver and a transmitter for respectively receiving and transmitting a data cell, a method for virtual path switching of said data cell, the method comprising:

receiving a data cell at one of a plurality of input ports of [said] a processing satellite;

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examining an assigned virtual path identifier (VPI) in said data cell to determine a destination output port associated with said assigned VPI;

transferring said data cell to said destination output port;

establishing a set of VPIs wherein each VPI is uniquely associated with a single output port on said processing satellite;

establishing a set of virtual channel identifiers (VCIs);

assigning said assigned VPI from said set of VPIs and a VCI from said set of VCIs to said data cell; and

transmitting said data cell to said processing satellite;

wherein said step of assigning comprising assigning an externally managed VPI and an externally managed VCI, and wherein said step of examining comprises examining said assigned externally managed VPI in said data cell to determine a destination output port associated with said assigned externally managed VPI.

19. (Amended) In a processing satellite communications system including at least one processing satellite having a receiver and a transmitter for respectively receiving and transmitting a data cell, a method for expanded address virtual path switching of said data cell, the method comprising:

receiving a data cell at one of a plurality of input ports of a processing satellite;

examining an assigned virtual path identifier (VPI) in said data cell to determine a destination output port associated with said assigned VPI;

attaching a selected routing tag to said data cell based on said assigned VPI, said routing tag identifying a next virtual channel link; and

transferring said data cell to said destination output port based on said assigned VPI.

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21. (Amended) In a processing satellite communications system including at least one processing satellite having a receiver and a transmitter for respectively receiving and transmitting a data cell, a method for expanded address virtual path switching of said data cell, the method comprising:

receiving a data cell at one of a plurality of input ports of a processing satellite;

examining an assigned virtual path identifier (VPI) in said data cell to determine a destination output port;

attaching a selected routing tag to said data cell, said routing tag identifying a next virtual channel link;

transferring said data cell to said destination output port;

assigning said assigned VPI to said data cell;

assigning a virtual channel identifier (VCI) to said data cell;

establishing at least two VPIs corresponding to a single output port; and

establishing a set of VCIs.

23. (Amended) An apparatus for path switching a data cell to a satellite output port for transmission in a downlink, the apparatus comprising:

an input module comprising a plurality of input ports;

an output module comprising a plurality of output ports; and

circuitry responsive to address bits in a data cell and to an assignment of said address bits to said output ports based on an assigned virtual path identifier (VPI) in said data cell, for coupling said data cell to at least one of said output ports.

28. (Amended) An apparatus for path switching a data cell to a satellite output port for transmission in a downlink, the apparatus comprising:

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an input module comprising a plurality of input ports;
an output module comprising a plurality of output ports; and
circuitry responsive to address bits in a data cell and to an assignment of said address bits
to said output ports, for coupling said data cell to at least one of said output ports, said address
bits include at least a portion of a virtual path identifier (VPI), said assignment includes an
assignment of an output port associated with at least two VPIs.